REMARKS

It is noted that the certified copy and the claim for priority under 35 USC 119 have been placed of record.

The drawings are amended by a separate and accompanying paper. The specification is amended to use the reference numerical 31a.

The abstract has been amended; however, it is thought that the abstract was well written.

Respectfully submitted, the specification clearly supported Claims 1-12. Nevertheless, amendments have been made in the specification in an effort to respond to the rejection under 350 USC 112. If the Examiner continues to believe that there are problems, he is respectfully requested to telephone the undersigned attorney so that his problems may be understood. Any reasonably necessary amendments will be made promptly.

As to the amended claim 1, please note first that the insulator (8) cooperates with the end portions (31a) of the flexible conductive wires (31) and with the contact portion (61) of the flexible reinforcing member (6) to make the fitting portion (82) read to be connected with the counterpart connector (11). The end portions (31a) and the contact portion (61) are brought into contact with the counterpart connector (11) when the fitting portion (82) is connected with the counterpart connector (11).

For the foregoing reasons, it is thought that the application is now in condition for allowance. If the Examiner disagrees, he is requested to telephone the undersigned attorney before issuing a new Office Action. Any reasonably necessary amendments

will be made promptly.

Reconsideration and allowance are requested.

Respectfully submitted,

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J. Warren Whitesel
Registration No. 16830
MICHAEL BEST & FRIEDRICH LLC
(Incorporating LAFF, WHITESEL & SARET)
ATTORNEYS AT LAW
401 North Michigan Avenue
Chicago, Illinois 60611
Telephone 312-661-2100
Fax 312-661-0029

JWW/dsr/wp

IN THE
UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF: Koji HAYASHI et al.

CASE: 200380-0290

SERIAL NO.: 09/705,247

FILED ON: November 2, 2000

FOR: Flexible Connector Integrally Having Transmission Line

Group Art Unit:

COPY OF PAPERS ORIGINALLY FILED

Examiner:

COVER SHEET FOR "VERSION WITH MARKINGS TO SHOW CHANGES MADE" IN ACCORDANCE WITH 37 CFR 1.121

MICHAEL BEST & FRIEDRICH LLC
(Incorporating LAFF, WHITESEL & SARET LTD.)
401 North Michigan Avenue
Chicago, Illinois 60611-4212
(312) 661-2100 - Fax: (312) 661-0029

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In Fig. 3A, the high-speed transmission line 2 includes a conductor 3 manufactured by pressing or etching, an upper insulating sheet 4 attached to the front surface of the conductor 3, a middle insulating sheet 5 attached to the rear surface of the conductor 3, a thin metallic plate 6 attached as a flexible reinforcing member to the rear surface of the second insulating sheet 5, and a lower insulating sheet 7 attached to the rear surface of the metallic plate 6. The metallic plate 6 is formed with contact portions 61 at both ends in a predetermined or longitudinal direction thereof. Each of the contact portions 61 includes engaging portions 62 formed by bending both ends in a width or cross direction thereof. Each of the engaging portions 62 has a pair of L-like holes 63 formed therein. The middle insulating sheet 5 will be referred to as a first insulating sheet. The upper insulating sheet 4 will be referred to as a second insulating sheet. The lower insulating sheet 7 will be referred to as a third insulating sheet.

Each of the insulators 8 is formed with a pair of claws (OR PAWLS) 83 as a first engaging portion on both ends of the width thereof. When the high-speed transmission line 2 and the insulators 8 are assembled, the L-like holes 63 of the engaging portions 62 are engaged with the claws 83 of the insulators 8 as shown in Fig. 3B. Herein, the engaging portions 62 serve as a second engaging portion. A combination of the claws 83 and the engaging portions 62 is referred to as a coupling arrangement.

Referring to Fig. 4A, the conductor 3 is previously formed with a plurality of flexible conductive wires (OR PATTERNS) 31 equal in width spaced at equal intervals. (EACH OF THE PATTERNS 31 EXTENDS IN THE PREDETERMINED DIRECTION TO HAVE END PORTIONS 31a,) Then, the first insulating sheet 4 and the second insulating sheet 5 are attached to the front surface and the rear surface of the conductor 3, respectively, as shown in Fig. 4B. It should be noted that carriers 35 are connected integrally to both ends of the conductor 3 in the longitudinal direction. For the current capacity for a power source, the impedance, and the lik , one of the flexible

conductive wires 31 may have different width selected according to the pin assignment.

As shown in Fig. 4C, the conductor 3 may be previously formed with a first wire group comprising a plurality of flexible conductive wires 32 of small width, a second wire group comprising a plurality of flexible conductive wires 33 of middle width, and a third wire group comprising a plurality of flexible conductive wires 34 of large width. In other words, the flexible conductive wires are grouped into a plurality of wire groups between which the flexible conductive wires have different widths.

As shown in Fig. 5A, each insulator 8 is attached to extend along the pattern 31 having the wires equal in width and the first insulating sheet 4 by integral molding or insertion. The attached state is shown in Fig. 5B.

Referring to Fig. 6A, two elongated holes 64 are previously formed in the metallic plate 6 to extend along the length of the metallic plate 6. The width of each elongated hole 64 is slightly larger than the width of each slit 41 formed in the upper, the middle, and the lower insulating sheets 4, 5, and 7 as described later. In the state shown in Fig. 6A, the front surface of the metallic plate 6 is attached to the rear surface of the middle insulating sheet 5 and the pairs of L-like holes 63 of the metallic plate 6 are engaged with the pairs of pawls 83 of the respective insulators 8. Further, the lower insulating sheet 7 is attached to the rear surface of the metallic plate 6. The carriers 35 and parts of the pattern 31 near the carriers 35 of the conductor 3 are cut and removed. After that, two slits 41 are cut or formed in the lamination of the upper insulating sheet 4, the conductor 3, the middle insulating sheet 5, the metallic plate 6, and the lower insulating sheet 7 by a cutter. At this point, the edge of the cutter is placed to a portion between one wire of the pattern 31 and the adjacent one of the pattern 31 and in the each elongated hole 64 of the metallic plate 6. As a result of this, the process of manufacturing the connector 1 is accomplished.

Page 7 of the Specification, marked-up version.

With reference to Fig. 7A, the description will be continued. The conductor 3, the upper insulating sheet 4, and the middle insulating sheet 5 are held and secured to a body 81 of the each insulator 8. Further, the end portions 31a of the patterns 31 of the conductor 3 is held and secured to [an fitting portion 82 of] the each insulator 8. Thus, each insulator 8 is cooperated with the end portions 31a of the patterns 31 and with a contact portion 61 of the metallic plate 6 to make a fitting portion 82 for being connected with a counterpart connector or a relative connector 11 illustrated in Fig. 7B. Each engaging portion 62 of the metallic plate 6 is engaged with the each insulator 8 so that he metallic plate 6 and the insulators 8 are integrated. The metallic plate 6 is provided at its ends with the contact portions 61 (see Fig. 3A) which serve as ground parts and come in contact with a plurality of ground contacts of a counterpart connector.

5. A flexible connector as claimed in claim 3, wherein said fl xible reinforcing member is made of a metallic plate.

6. A flexible connector as claimed in claim 3 [5], wherein said flexible reinforcing member has at least one elongated slit extending in said predetermined direction.

7. A flexible connector as claimed in claim 3 [5], wherein said counterpart connector includes a ground contact, said flexible reinforcing member having a ground part for coming in contact with said ground contact.

8. A flexible connector as claimed in claim 1, further comprising a second insulating sheet placed at the other side of said plane to cover said flexible conductive wires.

9. A flexible connector as claimed in claim 8, wherein said second insulation sheet has at least one elongated slit extending in said predetermined direction.

10. A flexible connector as claimed in claim 1, further comprising a third insulating sheet placed on said flexible reinforcing member to cover said flexible reinforcing member.

11. A flexible connector as claimed in claim 10, wherein said second insulation sheet has at least one elongated slit extending in said predetermined direction.

12. A flexible connector as claimed in claim 1, wherein said flexible conductive wires are grouped into a plurality of wire groups between which said flexible conductive wires have different widths.

Abstract of the Disclosure:

In a flexible connector having a fitting portion for being connected with a counterpart connector, a plurality of flexible conductive wires (31) are arranged on a plane in parallel to each other and extend to have end portions. The flexible conductive wires are held by an insulator (8) which makes the fitting portion in cooperation with the end portions of the flexible conductive wires. A flexible reinforcing member (6) is placed at one side of the plane to reinforce the flexible conductive wires and mechanically couples to the insulator.

(Fig. 3A)